

## CLAIMS

1. Earth leakage protection device comprising:

- 5 - an input designed to be connected to a measuring toroid of an earth leakage current,
- comparison means for comparing a signal representative of an earth leakage current with a reference threshold,
- processing means to command a trip relay for opening main contacts when an earth leakage fault is detected,
- 10 - rectifying means receiving at least one signal representative of an earth leakage current, and
- filtering means connected to the rectifying means to filter a rectified signal supplied by the rectifying means and to supply a filtered rectified signal to said comparison means.

15 2. Device according to claim 1 wherein the filtering means comprise a low-pass filter having a cut-off frequency comprised between 2 and 4 times the fundamental frequency of an electrical power system.

3. Device according to claim 1 comprising an integrated circuit comprising:

- 20 - an amplifier receiving input signals,
- a signal rectifier connected on output of the amplifier,
- at least a first part of the filtering means connected on output of the amplifier and comprising a filtering output,
- a comparator connected to said first part of the filtering means,
- 25 - control means comprising a time delay device to monitor tripping and non-tripping times connected on output of said comparator, and
- a tripping control output connected on output of the control means.

30 4. Device according to claim 1 wherein the filtering means comprise a first internal part with a resistive element arranged in an integrated circuit and a second external part with a capacitive element arranged outside said integrated circuit and connected to the internal part by means of a filtering output.

5. Device according to claim 4 wherein the filtering means comprise a first internal part comprising two buffer circuits to command a current mirror designed to reference a filtering signal to a power supply line or a reference line.

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6. Electrical switchgear unit comprising main conductors and contacts connected in series, a measuring toroid of an earth leakage current surrounding the main conductors, and a trip relay for opening said main contacts, comprising an earth leakage trip device according to claim 1 connected to the measuring toroid and to the trip relay.

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